approach

JUNE 1976 THE NAVAL AVIATION SAFETY REVIEW

THERE have been numerous studies conducted in the past decade on how to decrease carrier landing accidents. These studies generally conclude that the vast majority of carrier landing accidents can be placed in two categories: hard landings and ramp strikes. In fact, in 1970, 96 percent of all carrier landing accidents (23 out of 24) were the result of either a hard landing (12) or a ramp strike (11).

These studies have not been without recommendations on how to decrease the carrier landing accident rate. Decreasing aircraft approach speed, increasing aircraft pitch response, improving landing sink rate capability, and decreasing engine response time are all examples of recommendations that have been incorporated to make the carrier approach safer. The most recent recommendation is also the most revolutionary and promises to add a whole new dimension in carrier landing technique and safety. It is increased "height tracking" capability (improved aircraft response from pilots' input for keeping the ball in the center) obtained through the use of DLC – direct lift control.

What is DLC? Simply stated, it is a system that interrelates flight control surfaces to alter lift without changing power and/or angle-of-attack. What this means to the pilot is that he can correct for glide slope errors such as "climb in close," for example, by merely actuating DLC down, thus killing lift, rather than resorting to that old LSO favorite "drop nose in close."

In the F-14, DLC can be actuated to either kill or increase lift (unlike the S-3) by using a thumbwheel on the stick (Fig. 1). The wing spoilers rise to a +3-degree position

DLC* IS HERE, *finally!*

* Direct Lift Control

By LCDR George Webb
CVW-6 LSO

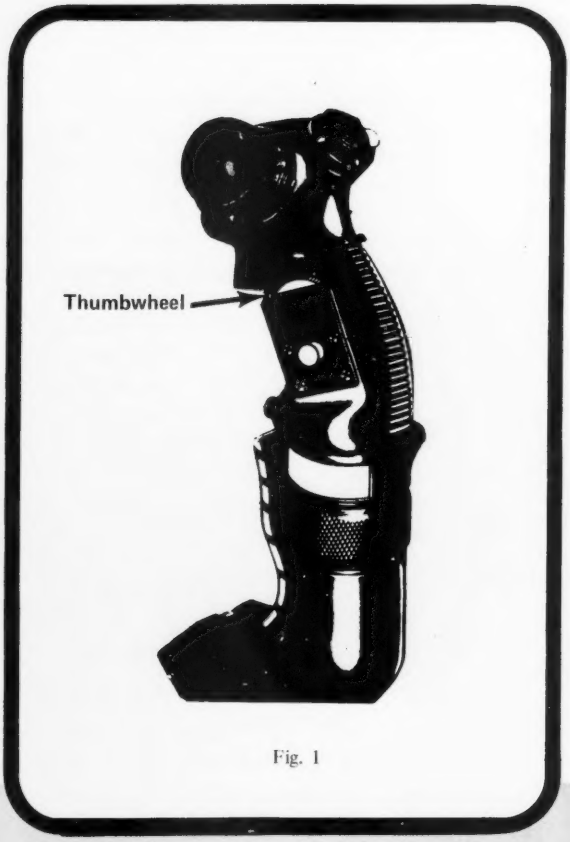


Fig. 1

upon actuation of the system (Fig. 2). The thumbwheel commands then control spoiler movement up or down, automatically in conjunction with the elevator, to produce the desired glide path correction.

Why do we need DLC on the S-3 and F-14 when they were designed to have significantly slower approach speeds than existing carrier aircraft and have been stressed to take a fairly high sink rate? The answer lies in their height tracking capability. Looking at the basic approach characteristics of these two birds makes one wonder how they could possibly have good enough height tracking to reduce ramp strikes. Why? Well, to achieve their slow approach speeds requires very efficient high lift wings in the approach configuration. These high lift wings have the bad side effect of being extremely gust-responsive. That, coupled with the realization that they are exposed to the carrier air wake turbulence (burble) longer during an approach simply because of their slower approach speeds, yields the result of large glide slope excursions. (Try imagining how a sail plane would react behind a carrier, and you get a feeling of the problem.)

Next, both of these airplanes have fan-jet engines for

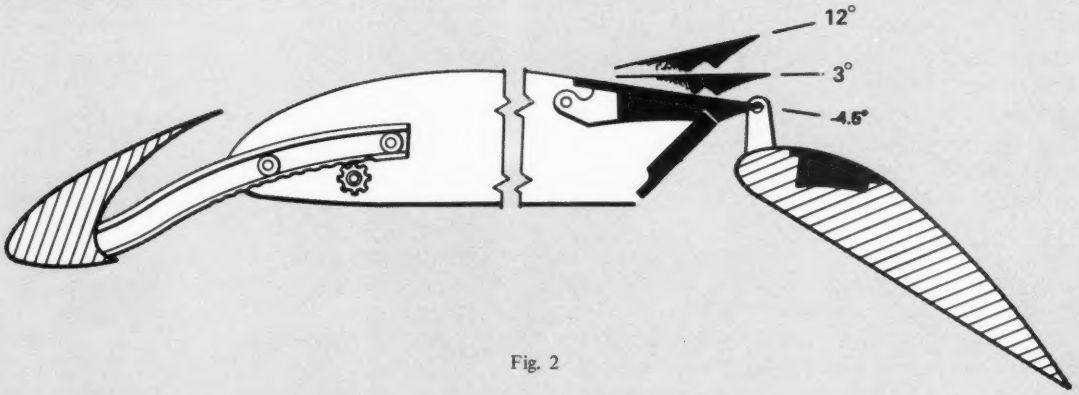


Fig. 2

improved fuel specifics. But that results in very slow power response characteristics. This, when combined with their inherently slow pitch response in the approach configuration, gives even further reduced height tracking capability. So how can we counter the bad side effects of good fuel specs, slow approach speeds, and slow pitch response so that we end up with good height tracking capability? With DLC.

Actually, DLC is not that new. In 1964, an F-8 was equipped with DLC in the form of variable flaps, and it was proved that more precise control of flightpath was possible than with conventional throttle/elevator control. It amazes me that after seeing these results, DLC hasn't been required on carrier aircraft ever since!

We now have two new aircraft equipped with DLC in the form of spoilers on top of the wing. The F-14 was designed with a two-way proportional DLC, so called because it can be activated in either direction to kill or increase lift in an amount proportional to pilot input. At one time in the early stages of testing, an attempt was made to remove DLC from the F-14 to "save money." Fortunately, carrier suitability engineers and test pilots were able to convince management that the F-14 could be unsafe without it. If DLC prevents just one ramp strike, it has more than paid for itself.

The S-3, on the other hand, was not originally designed with DLC. When it was determined that the S-3 could be unsafe during carrier approaches without it, it was retrofitted with a one-way, bang-bang DLC system only after another close management versus carrier suitability contest. Using this system, though, the pilot can only kill lift and only in one magnitude.

Hopefully, after seeing the results with these aircraft, DLC will become mandatory on future carrier aircraft. What other single system can allow slow approach speeds, fuel economical fan-jets, reduced landing sink rates, and reduced ramp strikes, while at the same time improving boarding rates?

But now that we have aircraft with operable DLC, we do have another problem: teaching the correct use of this system. From my experiences with new S-3 and F-14 squadrons coming from their respective RAGs, there is little or no training in correct DLC usage. Consequently, when they first start FCLP training for initial CARQUALs, DLC use is not stressed and, in fact, is at times promoted as a crutch. I've even heard such astute reasoning as "We don't want our pilots to rely on DLC because what would happen if it didn't work?" Gents, all I can say is these two airplanes don't have DLC because it's something new and neat to have; DLC is installed because, without it, in certain environmental conditions, they have unsafe approach characteristics. The use of DLC should not be construed as optional; it's mandatory! Consequently, proper training in its use during FCLPs is also mandatory.

FCLPs can leave a pilot with a false sense of security in his aircraft's carrier landing capabilities. The wind seldom reaches 30 knots ashore and there is no burble. It's easier to keep the ball in the middle without using DLC and therefore the feeling is promoted that it will be the same on the ship. Believe it or not, I've actually heard it

said that DLC is only necessary "in-close" and then only in the down (kill lift) direction. It's easy to see the error in this line of thinking through the following logic: During FCLPs, when you get "in-close," the ball will normally start rising because of the aircraft getting into ground effect. DLC will indeed correct for this rise. However, after a little thought, any carrier pilot can see this is not the norm for a shipboard pass. In fact, it's usually quite the opposite! I'm sure any S-3 or F-14 pilot who has CARQUALed his new bird will agree with me that there is a lot of difference between a FCLP and a carrier pass.

So how can we teach the use of DLC? It may sound absurd, but I've found the best way is *not* to keep the ball in the middle. Now that all the guffawing has subsided, let me explain. The way to learn how to use DLC is to learn what it can do – to learn how much up or down DLC held for how long will produce how much ball movement in what amount of time. To practice these things, we cannot just roll into the groove and keep the ball in the center. I will be the first to admit that DLC is probably not required during most FCLP periods. So how can we take advantage of FCLPs? By having the pilot make intentional glide slope errors and then correct them through the use of DLC. This is actually the way it was evaluated at the Naval Air Test Center prior to going to the ship. Another nice feature of this training technique is that those inclined to make glide slope errors without undue effort can always claim they were doing so with the goal of DLC proficiency.

One way to avoid this excuse and keep LSOs ahead of the pilots is to closely coordinate training between pilots and LSOs. Thus the LSO will know what intentional errors are being made, how to evaluate them, and later debrief the pilot on his technique. A typical DLC training period could be set up on a kneeboard card (for both pilot and LSO) and contain the following setups for the pilot to correct:

Pass	Glide Slope Error
1	High start
2	Low start
3	Climb in the middle
4	Settle in the middle
5	Climb in-close
6	Settle in-close

These glide slope errors should initially be of a magnitude of about one ball. For instance, on pass No. 3, after a normal start, the pilot would cause the airplane to climb to a ball-high about halfway down the glide slope. He would hold this until the LSO said something to the effect of "Now work it down." Then the pilot, through the use of DLC, would recenter the ball and continue the approach to touchdown. The LSO would monitor the pilot's use of DLC and be ready to make advisory calls. He would know what the pilot was doing because they would both be prebriefed and using the same card. As expertise is increased, intentional glide slope errors can also be increased in magnitude. This will build a further appreciation for DLC and increase pilot confidence and capability in its use. Then, when he gets out to the ship, he will be much better prepared for using the improved height tracking capability of his airplane. He should have better passes, increase his boarding rate, and greatly reduce the possibility of a landing accident.

A welcome side effect of DLC training is better postflight writeups and maintenance work-offs of system discrepancies. The DLC system, like any AFCS system, can require periodic "tweeking" to keep it in proper working order. Through the concentrated use of DLC, pilots will be more qualified to write valid gripes, and maintenance, through increased exposure to the system, will be better qualified to fix the discrepancies.

As I've tried to say throughout, DLC can be extremely beneficial for carrier aviation. It's really one of those things "you've got to see to believe." But we have to train with it on the beach to reap its benefits aboard ship. There's no time for practice or learning how the system works once you're deployed. Let's get our head out of the ground and start using DLC like it was meant to be used. Try it – I think you'll be surprised.

Footnote: Have you heard of the F-18? Does it yet have DLC? (No.) Does it have a fairly high approach speed? (Yes.) Does it have a fairly low sink rate capability? (Yes.) Doesn't that sound like another airplane we used to have? (Subtract 10 from the -18.) Does that sound very nice?

The upcoming "burble mirror" promises to be a great training aid for DLC technique improvement. Watch for it in the near future. – Ed.

By LCDR Allen K. Mears
HC-2, Det 3

HELOS: No Two Landings Are Alike

THE article in the MAR '75 APPROACH, written by Col Verdi and Maj Henderson, was received with pleasure and gratitude for its intelligent portrayal of a helicopter during the landing phase.

The authors label the airplane's requirement to dissipate energy of position first, followed by the dissipation of energy of motion, as an asset, and the helicopter's need to dissipate both simultaneously, as a liability. I prefer to think that an airplane has only one degree of freedom whereas a helicopter has two. This is not a liability; it is versatility. It may be risky, as the authors state, but it is versatility nonetheless.

Let's digress and look at why many helicopters do wind up a pile of rubble. The following sentence reeks of the obvious, but for emphasis, it will be said anyway. *Every single landing that an airplane makes, be it normal, or a practice emergency, or even a real emergency, is done to either a long runway or to a deck which is lined up with the airplane's final approach heading.* Every single landing reenforces all of the pilot's past experiences and yields further knowledge that the pilot has available the next time he shoots a landing. The airplane pilot's total landing training, from his first flight at VT-1 to his most recent flight in his present unit, is geared for a basically similar landing, time after time.

Where do helicopters land? In a helo pilot's list of places on which he routinely lands are runways, parallel taxiways, spots, fingers, cross-deck, down the throat, on the deck of nonaviation ships, confined areas, pinnacles, and mountainous terrain. Where is the reenforcing experience when even two successive landings often offer no similarities? Where is the training the helo pilot receives so he is capable of matching the versatility of his aircraft? The answer to both questions is essentially *nowhere!*

Let me explain by citing only two examples taken from my career. Keep in mind that there are more where these come from.

- As a student at HT-8, I made about five landings to a confined area in an H-34. The next time I made a confined area landing was 4 years later going through gunnery at Fort Rucker in an H-1. The next time was several months later making a SEAL team insert in a combat zone. If I had busted that helo, would there have been any mention of the lack of training in the mishap report?
- My first several pinnacle landings (at least I considered them such) were landing cross-deck on ESSEX; the next at Fort Rucker; the next in Vietnam. If I had landed 5 feet short on any of these, would the lack of training or consistency been discussed in the AAR?

If I prang up my helo on the fantail of LITTLE ROCK, will training, consistency, or reenforcement be discussed? It will be by me, but will it count for anything? Believe it or not, I'm not complaining. Helicopter flying exhilarates me and is just plain fun most of the time. Neither am I suggesting a massive training program. To do any good, helo training would take several years, and you would still lack the reenforcing experience of landing the same way time after time.

As long as my helo is as versatile as it is, I will continue to land wherever operational commitments take me. I said *operational* commitments. Only the undefined "they" decide what an operational commitment is. As long as *they* send me to a dozen different landing environments, I will try to land in a professional manner and give my best each and every time. It is fine with me if *they* exploit the helo's versatility. To do less would not be efficient use of a valuable asset.

Be advised, though, there is a price to pay for requiring that versatility. The price is landing accidents. This price can be greatly reduced by taking Col Verdi's and Maj Henderson's suggestions for action – more and better flight simulators and instrumentation.

Meanwhile, let's get off the pilot's back, you all. You get what you pay for and what you ask for. ◄

GCA Slow Roll

DURING a routine profile-C functional checkflight, a Roll Stab 2 caution light illuminated while performing landing configuration checks at 3000 feet MSL. The caution light was not extinguishable by normal means (recycling the Roll Stab Aug switch). However, recalling previous experience in early F-14 RDT&E aircraft, in which spurious Stab lights were commonly encountered, the pilot cycled the roll and pitch computer circuit breakers (LA1, LB1) and successfully extinguished the Roll Stab 2 light.

The pilot returned to land and was shooting a GCA when the same light again illuminated. The aircraft was on speed in the landing configuration with DLC engaged. Attempting to put out the light, the pilot *pulled* the roll and pitch circuit breakers again. Meanwhile, the F-14 had rolled into a slight left bank, and after reestablishing his instrument scan, the pilot tried to level the wings.

He applied right stick and right rudder but failed to stop the roll. He next saw that the left outboard spoiler was in the full-up position, so he selected MRT and then full afterburner, followed by full right stick and full right rudder. The aircraft hesitated but still continued to roll left at an increasing rate. After about 140 degrees of roll, it was apparent that the left roll was going to continue. Therefore, the pilot reversed the controls to full left aileron and full left rudder to keep rolling. After about 200 degrees of roll the pilot reversed his stick and rudder inputs and applied aft stick to minimize altitude loss. This didn't stop the roll but it did slow the rate.

As the aircraft passed through wings level at 20-30 degrees nose up, the pilot noticed the popped circuit breakers. After resetting them, the left outboard spoiler dropped immediately and the F-14 became controllable. Minimum altitude during the roll was 600 feet MSL.

When the aerobatics began, the NFO declared an emergency on Approach Control frequency and selected emergency on the IFF. After the aircraft became controllable, the NFO cancelled the emergency and requested a straight-in visual approach. The crew reviewed the landing checklist and the pilot made an uneventful landing.

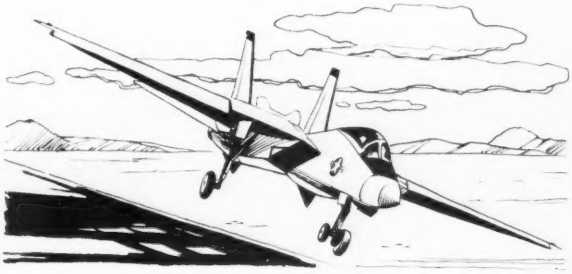
Subsequent maintenance troubleshooting revealed that the left outboard spoiler would slowly deploy to the full-up position when the pitch computer circuit breaker (LB1) was pulled. The spoiler would drop immediately when the pitch computer circuit breaker was reset. Troubleshooters suspected internal failure of the electrohydraulic control valve. Pulling the pitch computer a.c. circuit breaker resulted in removal of the *down* command, and internal failure caused the spoiler to be driven up hydraulically.

The CO opined that the pilot's action of pulling circuit breakers LA1 and LB1 in flight not only resulted in the left outboard spoiler malfunction but also rendered the entire spoiler system inoperable. Lateral control authority was significantly decreased and was available only from differential horizontal stabilizer and the roll contribution due to rudder displacement. It is recognized that the spoiler actuator malfunction would probably not have been discovered if the pulled circuit breaker procedure had not been attempted. However, the risk of control loss involved by using this procedure is not worth the gain. Therefore, the procedure will not be used in flight anymore.

The squadron initiated an interim poststart procedure to determine if other aircraft exhibited this malfunction. The procedure is to pull the roll and pitch computer circuit breakers after cycling the controls and wait about 10 seconds to ascertain that no spoiler malfunction exists.

The CO also recommended that all operators of F-14s accomplish this check on a one-time basis. He also submitted a NATOPS change, which has been amended to incorporate a *Warning* regarding the effect on lateral control authority if the pitch and roll computer circuit breakers (LA1, LB1) are pulled in flight.

Some people might criticize this pilot for pulling the circuit breakers and thus inducing the emergency. No one, however, can disagree with the presence of mind and outstanding airmanship displayed by the pilot after the emergency arose. – Ed.



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ONE OF THOSE DAYS

By RVAW-110 Det 4

DURING routine flight operations from the "Mighty O" (USS ORISKANY), an E-1B aircraft, piloted by LT Bill Leins and LTJG Larry Rhea, along with a flightcrew of three, was launched on an airborne early-warning mission. While climbing outbound only minutes after the cat shot, a torque pressure split of 50 psi gradually occurred between the port and starboard engines – the port being lesser of the two. This gradual split started a series of events that transformed a would-be routine mission into a flight fraught with danger.

At this time, all engine instruments were normal. The pilots, using sound judgment, concurred on returning to

the ship for a precautionary recovery and so notified the ship.

Just as the turn toward the ship was initiated, the port engine magnetic chip detector light illuminated. A quick check of instruments showed deteriorating oil pressure, further decrease in torque pressure, and high oil temperature, indicating impending engine failure. As the oil pressure dropped to 40 psi, the port engine was secured and the propeller feathered. Starting at 3200 feet MSL, the *Fudd* (never famed for its single-engine capabilities) immediately began to lose altitude. Maximum rudder trim of 15 degrees and full deflection of the starboard rudder pedal were necessary at indicated airspeeds of 98-100 knots. The minimum NATOPS recommended airspeed for single-engine flight is 105 knots, but at that airspeed, the rate of descent was considerably higher.

The ship's flight deck crew scrambled to rig the barricade in anticipation of the *Fudd's* return to the ship, and preparations were completed in record time. However, recovery conditions at the ship were much less than desirable. In spite of VFR conditions, the "Mighty O's" deck was pitching and rolling in 10- to 12-foot seas with winds in excess of 30 knots. In consideration of a shipboard single-engine arrestment in high winds and heavy seas, nonexistent bolter/waveoff ability, and aircraft damage incurred when using a barricade, the pilots elected to bingo to the primary divert field, NAS Cubi Point, which was 105 miles away.

In an effort to stop the continuing loss of altitude, fuel was dumped to 2000 pounds. The crew made a further attempt to lighten the aircraft by jettisoning detachable radar components. Unfortunately, the combination of two crewmembers along with the weight of the equipment, placed far aft of the center of gravity, had an immediate adverse effect on the control of the single-engine aircraft. A precious 10 knots of airspeed and a valuable 500 feet of altitude were sacrificed when the main hatch was forced open to jettison the gear. Thus, the idea of jettisoning equipment was promptly abandoned after the elimination of one large black box.

The aircraft was now passing through 1600 feet with a rate of descent of approximately 200 feet per minute, despite 2500 rpm and 47 inches of manifold pressure. With power setting now bordering maximum limits, the only remaining alternative exclusive of ditching was to dump even more fuel. Dumping to 1600 pounds merely reduced the rate of descent to 100 feet per minute. Passing through 1000 feet, further dumping of fuel was initiated, and the aircraft finally leveled at 900 feet with 900 pounds of fuel remaining.

Still facing the pilots were the seemingly insurmountable odds of a 25-knot headwind and an indicated airspeed of 98 knots. With 60 miles remaining to Cubi Point and a flight duration of 50 minutes, fuel consumption was computed to be 1000 pounds per hour with mixture rich. At that rate, ditching into the treacherous seas was imminent. In an attempt to save their crew and the E-1B, the pilots concurred on placing the mixture in the normal position, leaving some hope that fuel consumption would decrease to a point that would permit adequate flight time to facilitate a field landing vice a watery grave for the aircraft and possibly the crew.

A limited amount of comfort was gained when the entrance to Subic Bay was sighted. Shortly after entering the bay, expectations of reaching the field increased, when, without warning, the outside air temperature and humidity increased drastically, effectively reducing the power output of the engine. After flying 52 miles at 900 feet, the *Fudd* suddenly began to lose altitude again with only 8 miles remaining to the approach end of the runway. Full power and mixture rich were selected to no avail. The aircraft continued to descend, and with all options played out, the crew could only hope for a safe landing.

Four miles from the threshold, Grande Island was circumnavigated at 400 feet, in fear that a possible downdraft over the island might aggravate the already dismal situation. As they rounded the island, the pilots were faced with low fuel level warning lights and the inability to read any indications whatsoever on the fuel gages. The threshold lay well above the nose of the aircraft as they passed through 200 feet, still undetermined if the runway was attainable. Then, realizing the runway was made, the gear was lowered and the *Fudd* dropped from the sky to land just beyond the threshold lights, engaging the first set of arresting gear.

The superb airmanship and judgment exhibited by LT Leins and LTJG Rhea and the gallant efforts that saved their crew and a naval aircraft are indicative of highly professional aviators. Congratulations on a job well done!

The Buildup Program

By CDR Gary Wheatley
Commanding Officer
VA-34

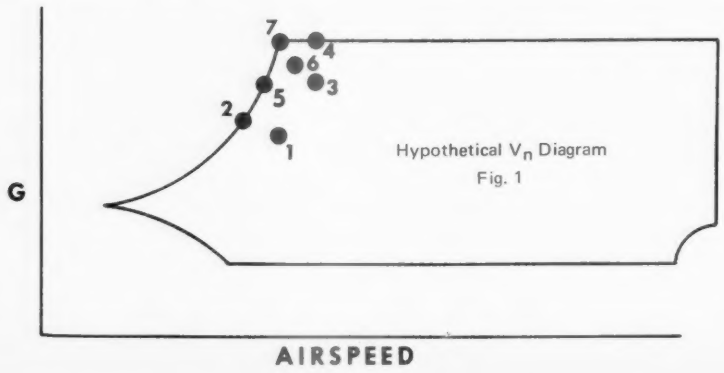
REMEMBER the satisfaction and elation you felt the last time you flew a mission that required you to perform to the limits of your ability? The challenge involved in flying your plane to both performance and mission limits is probably one of the greatest rewards of military aviation. But reflect on the years of training that were required for you to reach a point where you could accomplish a feat such as a night, IFR low-level followed by a black recovery to a pitching deck. How were you trained and how can we train future aviators to reach this level of performance without jeopardizing safety? How can we plan to make something with inherent dangers as safe as possible? The approach I believe in is one to which I was introduced years ago by some pretty savvy test pilots. It's called the "Buildup Program," and in its simplest interpretation, it might be called "Walk Before Run." However, it's really a great deal more.

A good example of the "Buildup Program" is the way a test pilot would demonstrate a contractually guaranteed performance point; let's say the upper left-hand corner of the V_n diagram (Fig. 1). To me this represents a well-reasoned and safety-conscious approach to a hazardous flight situation. Rather than go directly to the desired data point (No. 7 in Fig. 1), the pilot should approach it systematically in a series of well-planned and safety-conscious steps (points 1 thru 6). Between each step the data would be analyzed, the airplane checked over carefully, and so on. When point 7 was finally attained, the whole thing should really be anticlimactic because, through his progressive effort, the test pilot had no doubt about what he would find there.

This same sort of attitude and planning can be applied to any flying situation, but it has its best application to the mission limits of tactical aviation. The relevance to ACM is obvious, but perhaps not so much so to other missions, such as night low-level navigation, for example. How many times have you found yourself operating at your fringe or limits for the first time without any benefit of a buildup? It's uncomfortable, isn't it? But then perhaps the "you can't do it until you've done it" attitude prevails in your squadron. If so, you or your squadron are probably very vulnerable to a human factor accident resulting directly from someone's approaching a limit without adequate buildup.

In many cases, the buildup program is well-entrenched in our business. Carrier qualification, with its well-defined and closely scrutinized steps of field qual, day qual, etc., is an excellent example of a well thought out buildup program. Surely, you wouldn't send a nugget to the boat at night without FMLP. But would you send him somewhere else equally demanding and hazardous? What about low-level weapons deliveries, or ACM, or flight into marginal weather? There are many areas of our business where a buildup program would certainly increase our safety success rate, and not at the expense of readiness.

Our capability in combat is directly tied to how hard we train, and flying at our personal limits clearly increases our readiness. Some critics feel that this reduces safety. I contend, however, that demanding flying can be done safely, given a program that ensures adequate "buildup" and stresses the attitude that safety will be integrated into every mission from start to finish. I suggest that this type of program should be the driving factor for both training plans and day-to-day flight scheduling. "Is the aircrew ready (built up) for this mission?" should be the question ever present in the mind of the flight officer, the operations officer, as well as the commanding officer who sends his men out to fly.



Hypothetical V_n Diagram
Fig. 1

Cross-Country Flight

A SUCCESSFUL cross-country flight requires the use of all previously acquired aviation knowledge, training, and experience – plus a good measure of sound judgment. During a cross-country, the pilot in command becomes maintenance supervisor/expert, QA representative, and director of servicing/logistics. None of the familiar elements of everyday support are in evidence. There is no plane captain, schedules officer, CO, etc., to take responsibility for various aspects of the flight. The pilot in command has total responsibility and accountability in the relatively unfamiliar cross-country environment.

Accordingly, successful completion of a cross-country flight dictates that the pilot in command follow basic rules and be well prepared. A summary of elements to be considered is presented below:

- Use all weather facilities during preflight and inflight phases to ascertain present and forecast conditions for point of departure – enroute, destination, and alternate. When filing from a civilian field, weather must be obtained by telephone if no forecaster is available.
- Study approach plates and procedures at field of departure, destination, and alternate possibilities.
- Know the aircraft performance parameters and limitations. Check the NATOPS pocket checklist for takeoff/land data relative to the field to be used.
- Be familiar with what maintenance and servicing the aircraft will require at enroute and destination stops. Be explicit in stating requirements to transient line and OMD personnel. Ensure qualified personnel are available, and be prepared to supervise.
- Get adequate rest and food at enroute stops and during RON.
- Ensure the clearance you accept is complete, proper, and understood.

Cross-country flights provide valuable experience and diversity for fledgling aviators and old hands alike. They are encouraged, but must be thoroughly planned and properly executed.

Have a good trip.

Excerpted from COMNAVAIRLANT msg

The A-7 One Aircraft or Two?

By LCDR Ken Sanger
Naval Safety Center
A-7 Analyst

IN the beginning, the only *Corsair II* was the A-7A. But this did not last, for there was created the A-7B. This "B" was essentially an "A" with a better engine, variable flaps, and a few other changes – changes which did not really affect the pilot's task loading. In ground school, the A-7A/B pilot learned about things with which he was already somewhat familiar: the engine, the flight controls, the aerodynamic characteristics, and the systems. In flying the aircraft, he primarily used a gyro, an altimeter, a VSI (vertical speed indicator), an airspeed indicator, and an angle-of-attack indexer. If he wanted to and had the time, he could play with the radar, the nav computer (non-inertial), or the roller map (though he rarely used these for anything other than amusement and never depended on them for navigation or weapons delivery).

But this was soon to change, for there appeared low on the horizon an A-7 with a thermal shield where there should have been a pilot's helmet. This apparition was an A-7C which was only a "B" with some new gadgets – or was it?

The "Charlie" pilot was not only amusing himself with the new computer, the radar, the PMDS (Projected Map Display System), the HUD, and the pushbutton radio; he was actually using his avionics package and depending on it to guide him to a target. He was going to drop a bomb on that target without visual reference to the ground or the assistance of a B/N.

To the "C" was added a third hydraulic system and a new engine, thus producing the "E." In ground school and in flight, the C/E pilot learned, in addition to the standard single-seat attack subjects, how to navigate and bomb by radar; how to interpret HUD symbology; and how to operate, troubleshoot, and manage a sophisticated computer. He was tasked to do this in the same number of flight hours as permitted for the A/B pilot – at the expense of basic air work.

The C/E *is* a different aircraft than the A/B. The task loading of the C/E pilot is much greater in the course of a normal mission. In training, the A/B pilot has much more time to concentrate on how the aircraft flies than does the C/E pilot, who is also trying to learn and use the complex system. It normally takes a certain length of time to teach a dog to sit up and a little more to teach him to roll over. If

The A-7 has evolved from the relatively simple "A" model to the sophisticated, complex, systems aircraft, the "Echo." How can we expect to train an "Echo" pilot in the same amount of flight time as an A/B pilot without jeopardizing safety?

he is taught both in the same amount of time, he may roll over when you want him to sit up. Could this complexity have anything to do with the following facts?

- The C/E pilot error accident rate since July 1972 has been *twice* that of the A/B (1.03 to .50).
- Of the 13 C/E pilot error accidents since July 1975, 10 of them occurred before the pilot had attained 200 A-7 hours.
- There have been only 15 A/B pilot error accidents since July 1971. In only five of these did the pilot have less than 200 A-7 hours.

In other words, the A/B pilot error accidents occur across the spectrum of flight experience, but at a lesser rate than for the C/E. The C/E, however, appears to be a safer aircraft after the pilot becomes familiar with it. What can be done to improve the C/E pilot error rate, especially for those accidents in which the pilot has less than 200 hours in the A-7?

- Increase RAG syllabus flight time. This obviously would allow the RAG to devote more time to basic air work in formation flying, rendezvous, night flying, DCM, and other aspects of operational flying.
- Increase utilization of the WST (Weapons System Trainer), by fleet pilots as well as RAG pilots. This would allow the pilot to familiarize himself with the systems – and not at the expense of flight time. To implement this, it would probably mean installation of another WST at each A-7 base.
- Realize that the C/E nugget is not as ready as desired – this is most important. Commanding officers, ops officers, schedulers – know the new guy; don't wait for the RAG to send a completion letter; go to them (if possible). Talk to the new guy – ask him where he is weakest. Fly him with experienced pilots who can and will continue his training. Don't let him or anyone else believe that just because he's a fleet pilot all training is behind him.

The mission capability of the A-7 has been greatly enhanced by the evolution of the C/E models. This increased potential has not come for free, however. Operational efficiency *and* safety demand that the "Echo driver" receive enough training so that he can efficiently use the systems without neglecting basic air work. ◄

Devil's Report

By Capt R. H. Eisel, USMC

OUR squadron received an anonymous envelope last week that contained a carbon copy of what appeared to be some type of after-action report on our recent Med cruise. It was handwritten, full of blasphemous language against our squadron, and was completely covered with dirt and grime. It was also interesting to note that the envelope and enclosed report were singed and scorched. As I came back to my office after making a coffee run, I had a brief glimpse of my bookshelves and files beginning to shake. It had to be my imagination. I settled down at my desk to read the report. Despite the charred and discolored pages, most of it was still legible. Some of the less vulgar excerpts went something like this:

"I don't care how shorthanded you are here in hell, I'm not going on another Med cruise with that outfit! I worked day and night, in good and lousy weather, even during port visits! All I managed to tally up was less than two dozen incidents and a handful of ground accidents. I was told before I left that the least I could get was a Charlie or Delta crunch on that outfit. Everyone is full of bull these days. Here is a rundown on my efforts. Maybe that guy out there now will have better luck than I did. Of course, he could do worse, too.

"On the very first day of deployment on our recent cruise, I got in a little action. Made friends with a '53 crew while they were loading cargo. Later, as we landed on spot 7 on the LPH, I tried to get their tail rotor on the aft missile launcher. Imagine! A huge red fireball to kick off the cruise! Screwed it up. Everything was going great for me: aft CG, high nose attitude, lots of gross weight. Then that stupid pilot had to take his time on the landing, and all I had to show for my efforts was a broken tailskid pad. Even then they didn't let me live it down. There was a big discussion on correct cargo loading procedures. As a result, I knew it would be some time before I could get another crew to load and transport like that.

"A week later, I talked a '46 pilot into forgetting all the cheap talk about pitching decks and having the bird under control before touchdown. He landed hard, and I slashed a beautiful 8-inch crack in his right mainmount. He never even found out that I got him until he quit for the day. I was proud of my handiwork, but again they made a big deal out of it. Result: one more trick that would not be available to me. Only comfort I got was knowing that I still had almost 6 months to play with this outfit.

"During the next 2 weeks I mixed it up a little. I threw in a broken cabin window, gave them an engine min beep failure, and a lovely generator bearing failure with lots of heavy black smoke as an extra treat. I did some prior planning so each of these would be a complete surprise emergency, hoping that they might develop into full-blown panic scenes. Might even get the AAB off their butts and force Uncle Sam to hand out some of that green SGLI he keeps hoarding. No luck again! Damn pilots didn't even hem or haw around. Followed some set of procedures in a blue manual and didn't even give me a chance to complicate matters! Nothing happened, and yet they still made a big production of it. Now I knew unless they gave me a break, I had a tough row to hoe and would probably go home without any metal or *Nomex* souvenirs in my scrapbook.

"I got scared and panicked a little. Used up nine more of my tricks in the next month alone! I stole some '53 oil cooler fan belts in flight, got about 30 feet range on a broken AAP thru-bolt, and mysteriously had both a '46 and '53 wheel assembly fail during some touch-and-go practice. (I cheated a little by getting some help from one of the crews.) Rounded out the month with a couple of hydraulic leaks and short-circuited instrument panels. Did these at

night just to keep up on my minimums. Still, I couldn't get any mileage out of these emergencies, either. The pilots were so conscientious you would have thought that the hydraulic fluid was their own blood and that the electrical wires were part of their own nervous system! I did manage to sucker a '53 crew into a high mountain LZ that was about 4 inches too small, but only got two blade tipcaps although I had my hopes up.

"Even with all this volume of action I was producing, the 'brass' downstairs said they wanted bigger and more spectacular results: Get hot! At that time, I didn't realize they had an ax to grind with this squadron because they were the first outfit in years to get through a cruise without an accident, back on their 1973 deployment. I was under pressure and could feel the heat from below. I still had some aces up my sleeve, however, and knew it would be a good time to play them. I called up a buddy in a Navy '53 outfit for some help, and he said, 'No sweat.' A few days later, one of his aircraft hovered next to our '46s in the forward herringbone. The rotor wash broke a couple of folded '46 blades. I was sitting on the bridge, and what a beautiful sight! The squadron was madder than a nest of hornets; they couldn't believe it! The ship's air boss let my buddy sneak in. I had to call him later to say thanks, and to my surprise, he said he had just come over to have a look around. He didn't even know about the broken blades. Despite the results, I knew deep down that I wouldn't get credit for the damage, but it was a start on my damage list that the squadron was powerless to control.

"Using that crunch as encouragement, I started using some of my old standby tricks. Scared the bejeebers out of a supposedly experienced '46 HAC by throwing in a lot of haze and dust over the LZ on a midnight, simulated MedEvac. No damage to speak of, but I knew then that I wouldn't work only on the new guys. I followed this with a small rip in a '53 tail rotor blade and a puncture in a '46 rotor blade (managed to get the crew chief to launch and leave his clamshells open, so rotor wash from a landing aircraft flexed the blade over the clamshell – and punch!). The next day, I plucked out a '53 cabin window just to agitate them a little more. I wasn't worried about using that trick up – I'd done it for years and they never caught on.

"I was better than halfway through the cruise now, and unless the squadron called a truce and made friends with me, they were going to get through accident-free again. I tried to catch them off guard with a couple of ground accidents. Got a nice 3-inch-square hole in a *Huey* from a handling wheel slipping off. I had to laugh when a '46 aft transmission fell after the bolts holding the support hook failed. It only fell 18 inches and got caught on the engine bay door edge. They really played it up big after that: meetings, investigations, reviewing procedures, and a whole bunch of stuff about supervisors being right there on the job – even with a MIMs manual in their hand, if necessary. With all that attention, I knew two more tricks were used up on this cruise. I didn't even get an attaboy from below. As revenge, I conned a '46 HAC into some two-point landings on a rocky hill. Threw in a little wind with gusts and a sloping LZ to see if he would bite. He did. Final score: rocky hill, 3 (large holes in aircraft's belly) and the crew, 1 (painful lesson learned). They threw it around at the next AOM, and I chalked one more off for me. I could see the end in sight now. I had failed so miserably and knew that the real heat would be on when I got back home. I needed help desperately and got it from where I least expected it.

"Ole Man Weather and I had worked together a lot. He hinted to me that he would be going full blast on the transit back to Morehead City, and I should take advantage of the occasion. I sure did. One morning, they were respotting a *Huey* during rough weather. Every face was a pea-green color from all the pitching and rolling. I asked if I could hook up the tow bar to the skids. It wouldn't fit, and they didn't know what to do. I suggested that we invert it as a shortcut rather than walk all the way down to the hangar deck for the right one. We started towing, and I waited for a big roll before I pulled the locking pins. Wow! That *Huey* took off for the deck edge like a rocket! Only 50 feet of deck edge rail on the whole length of the 600-foot ship, and the tailskid had to catch it! I was already looking for my ticket home and expecting to hear the *Huey* splash in the ocean, but it never happened. How lucky can they get? Just 2 days out of Morehead City, and Ole Man Weather threw a hurricane at them on just a few hours' notice, with 25- and 35-foot waves, 30 degrees of roll, over 100 mph winds, and not one aircraft lost. Why did I let them get away with all those extra tiedown chains? I didn't get much satisfaction from just the broken rotor blades.

"Someday I'll get even. I've got to find a way to discredit their QA and NATOPS program. I've got to get the pilots and crew chiefs together and show them how much more respect and skill they'll attain by showing off their hot stuff to their families and friends. Then I'll pull the plug on them. On this cruise, every time I tried something new, they went into their normal song and dance about the incident, and began to watch out for me. I usually managed to get in nickel-and-dime stuff, but no-go on the aircraft accident list. I've got to keep trying; surely someone will listen to me. Let's see, they are expecting so much trouble from me during the cruises, maybe I can strike in their own backyard. If I can keep that taxiway line from being repainted, just maybe on a black, rainy night, I can talk that flight-hungry HAC into . . ."

Reprinted from MAG-26, *Safety Raiser*, FEB '76

HUMMER with a hangup

QUESTION: When does a *Hummer* stop humming?
ANSWER: When the prop blades start striking hard asphalt instead of pulling smooth air.

There was little humming by either aircraft or crew when this undesirable situation was caused by an E-2 main landing gear that couldn't be lowered. The trouble occurred during the aircraft's second flight of the day. The pilot and copilot, both CAPC qualified, took off after a routine but complete preflight. They were scheduled for a FMLP flight and proceeded to a nearby ALF.

After breaking, the *Hummer* was slowed to 170 knots and the gear handle was lowered. The nose and port main landing gear extended normally. The starboard wheelwell doors opened, but the gear didn't come off the uplock. The gear indicator confirmed the starboard gear was unsafe.

While reasonably slow and dirty, the gear was recycled a couple of times. Nothing happened. Then attempts were made to release the gear by exerting positive and negative G and lateral forces. The hydraulic system pressures for the combined and flight systems were normal, and there were no visible hydraulic leaks anywhere.

The crew returned to NAS Norfolk and established communications with the wing and squadron on base radio. Pilots and maintenance experts quickly gathered to lend a hand. The ASO went to the tower, and a radio was set up for him to monitor the base radio frequency. NATOPS emergency procedures were reviewed. The CAPC attempted to blow down the gear without success.

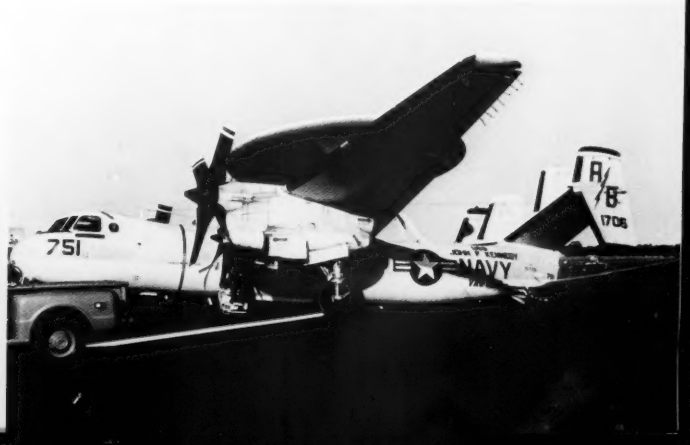
Various G forces were exerted again. Other methods were tried, too. Nothing worked. Finally, all concerned agreed that the starboard gear was up and locked and was going to stay that way.

A decision was made to foam the runway and plan for an arrested landing. Runway 28 was foamed just in front of the arresting wire and spread beyond the wire for 1500 feet. While waiting for the runway to be foamed, the pilot in command made two simulated approaches under the direction of the squadron LSO.

Downwind on the final approach, the copilot feathered No. 2 prop and positioned the blades 45 degrees from the vertical with the condition lever. The pilot then flew a 4.0 pass, as evident from the photos.

After landing, he used full left aileron and rudder to hold the wing up as long as he could. He stayed on centerline until the starboard wing contacted the runway, at which time the aircraft began a swerve to the right. The swerve increased as the aircraft slowed down. The *Hummer* left the foam 800 feet from the wire, 71 feet right of centerline, and 45 degrees to the runway heading. The engagement and wire runout were smooth with no excessive forces on the aircraft. Damage was slight.

Although the cause of the malfunction (an improperly installed timer check valve roller assembly) has since been "Murphy-proofed," this incident demonstrated a professional and systematic handling of an emergency that could happen for any number of reasons.



The bird with the longest wingspan is the Wandering Albatross. Wingspan: 12 feet.

The heaviest birds that fly weigh in excess of 20 pounds and include various species of cranes, swans, and condors.

The highest bi
at 37,000 feet.

FACT

FE

The longest migration route for any bird is that of the Arctic Tern (12,000 miles from Arctic to Antarctic).

Most small birds migrate at night.

The impact force of a 2-pound bird at 250 knots is over 17 million foot-pounds.

Odd S

t birdstrike occurred

One-half to one billion birds migrate through CONUS each year.

TS of a FEATHER

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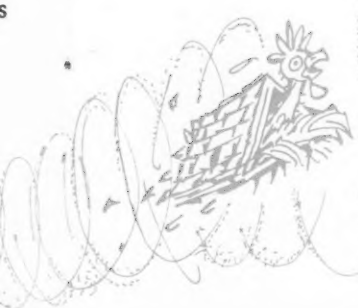

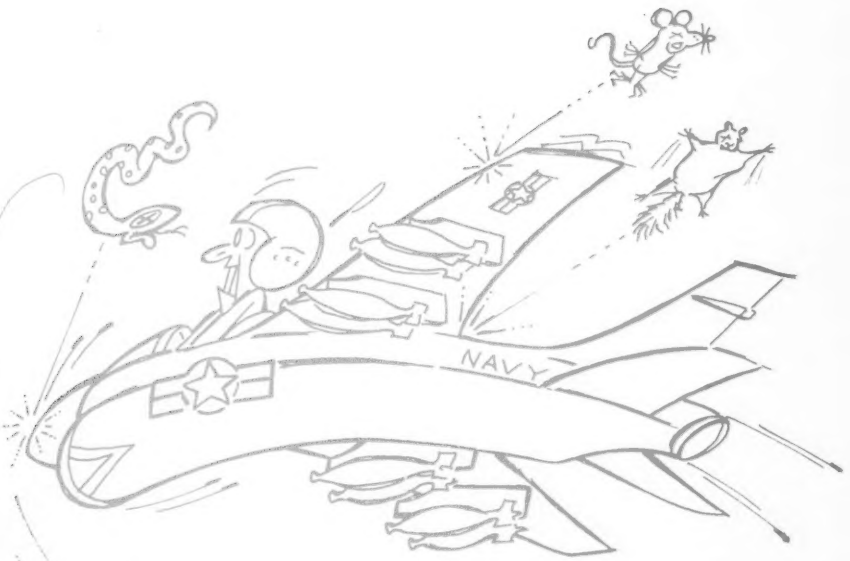

dd Strikes: A snake at 3000 AGL; a chicken at 800 AGL; a mouse at 8000 AGL; and a flying squirrel at 5000 AGL.

Adapted from *Aerospace Safety*

Aeromedical Safety Operations

A new concept in aviation accident prevention and investigation

By CDR A. F. Wells, MC
NAS Cecil Field AMSO

ONCE upon a time in the dimly remembered past, the Navy had an ample supply of a stock item designated as the Squadron Flight Surgeon. This was due mainly to the doctor draft which supplied the services with hordes of young physicians dragged, kicking and screaming, from the gold mine of civilian practice (now known as the malpractice morass). Many decided to make the best of their involuntary servitude by going into aviation medicine. Most turned out to be good doctors and naval officers. A very few were chronic malcontents, but these have slipped back from whence they came, leaving only their memory to stain our reputation. However, with the end of the draft, the source of the steady supply of flight surgeons dried up. The Squadron Flight Surgeon is now recognized as an endangered species, numbered somewhere between the passenger pigeon and the whooping crane. As a result of the declining number of flight surgeons and the nondeclining number of clinic

patients, the naval aviator began to see the flight surgeon on the line less and less. New programs were obviously needed to meet the crisis.

A few months ago, the AMSO (aeromedical safety operations) program was formed. The sole purpose of this organization is aeromedical safety consultation to the operational squadrons/wings. The various AMSOs (six) are made up of experienced aerospace physiologists and flight surgeons. All members are graduates of the Aviation Safety Officers' Course at Monterey. All AMSOs, no matter where assigned, are under the operational control of COMNAVAIRLANT or COMNAVAIRPAC. Our goals are essentially threefold:

1) *Prevention* – to discover, evaluate, and prevent hazards to the health and well-being of aircrews. We take the occupational/preventive medicine approach to prevention.

2) *Education* – to educate aircrews concerning the above hazards.

3) *Accident investigation* – in case (1) and (2) do not work.

Our area of interest in the realm of aeromedical safety is, therefore, almost unlimited. We are free to travel anywhere in CONUS at any time and, with Force Medical approval, to ships and overseas.

Under Our Prevention Hat. We will perform informal safety surveys on command request, evaluate the work environment, and evaluate the aircrew/aircraft system interface. Any situation which could lead to an adverse occurrence which could harm a pilot/aircrewman or

degrade the mission is our concern. This covers one helluva lot of ground.

Under Our Education Hat. We will talk to aircrews in your spaces on almost any aeromedical subject that you may desire. Give us a couple of weeks' leadtime so that we can arrange transportation (in the non-emergency, we hitchhike). Also, if the subject is one about which we know nothing, we can read up on it to appear wise.

Under Our Accident Investigation Hat. This part of our job we do not particularly enjoy, but it is vital to the safety program and we take it very seriously. It is not possible for us to assist in all aircraft accident investigations. However, in accidents due to pilot error or incapacitation, where significant psycho-physiological factors are involved, or where there is an escape system malfunction, and especially where injuries are involved, we can be of assistance in the investigation.

AMSO teams are not intended to replace those squadron and wing flight surgeons who remain. Your local flight surgeon still has the primary responsibility for aircrew surveillance, medical care, and accident investigation. If you have one available, by all means use *and support him.* But if you do not, we are here, we are as near as your phone, and we are ready now. We are also available to assist your flight surgeon if he should so desire or when directed by higher authority. ◄

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This is the office of the Commander, Light Attack Wing ONE. Please leave your name and number and notify if this is emergency or routine.

Call commercial – after hours.
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(904) 778-4477 (CDR Wells)

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NOTE 1. AMSO physiologists will be assigned during early 1976 to CNATRA units in the Pensacola area, and additional flight surgeons will be assigned in late 1976 to both coasts.

NOTE 2. For AMSO consultation or assistance, contact CNAL/CNAP or the nearest AMSO unit. Navywide service will be provided, but at present, if travel is requested, the requesting command must provide TAD funds. However, if we are needed in an emergency and funding is questionable, we will come by whatever naval air is available and discuss funding later.

Wild FIGAT

The FIGAT (TDU-29 Fiberglass Aerial Target) is an unpowered, normally passive aerodynamic object dragged behind an aircraft to provide air to air target practice. On this occasion, however, the FIGAT turned aggressor and a damaged tow aircraft was the result.

Takeoff and climbout for the section of A-4s were normal. Lead was dragging the FIGAT, and the chase aircraft was configured as a tanker. After level off at 10,000 feet, the lead pilot started reeling out the tow cable to an intended length of 1500 feet, prior to commencing aerial refueling. His intention was to place the FIGAT well aft in trail before plugging in to take on about 2000 pounds of fuel.

After only 420 feet of tow cable extension, the FIGAT's flightpath became erratic. It usually flies well below the tractor aircraft at a negative angle-of-attack (like a plow). However, suddenly it began a rapid, clockwise barrel roll. The pilot of the tow noted a yaw of his *Skyhawk*.

The chase pilot told the tractor pilot that the FIGAT's flightpath had become erratic. The tractor pilot slowed his aircraft and increased the reelout speed to try to dampen the FIGAT's flightpath. It didn't help. The FIGAT continued the barrel roll, and as it went over the top, it dragged the towline along the lower trailing edge of the tractor's port elevator. The cable traveled inboard, contacting the port side, aft section of the fuselage, and the port side of the vertical stabilizer, near the elevator. As the target continued to roll, coming downward and to the right, it dragged the towline across the port side of the tractor's tail.

The FIGAT's maneuvers caused the cable to destroy the TACAN antenna and pull off the aircraft's tail cone. The latter separated and fell into the sea. The tractor also had other damage but it was mostly cosmetic.

The FIGAT completed the first roll and started a second one. The pilot cut the target loose at a point when it was high and left of the tractor. Both *Skyhawks* returned to homeplate and landed.

Why a lateral force developed on the FIGAT isn't known, but presumably it was caused by a left yaw. Such a change in the target's attitude, with respect to the airstream, would have developed enough lateral force necessary to push the target left and subsequently cause a barrel roll.

The possibility of a warped vertical fin/fuselage was also considered as another source of lateral force. However, this alone shouldn't have caused the target to go "ape," since the barrel roll didn't begin until after the pilot started reeling out the tow cable. Also, the fact that the FIGAT began its barrel roll so quickly mitigates against the warped fin theory.

Another possibility was that the yaw might have been gust loading from the tractor's wake turbulence, but this doesn't stand up either, since the target was 300 feet below the tractor.

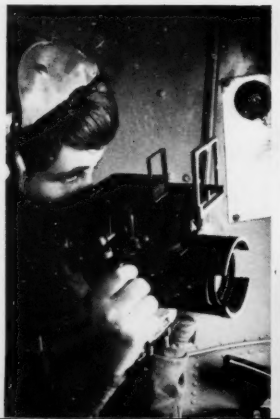
A final possibility was that the yaw source came from torque, generated through the tow cable, as the cable was being extended. If this latter reasoning was the cause, one would assume that the swivel between the tow cable and bridle failed to operate properly. This seems perfectly logical since the swivel in use sometimes tends to stick, even when tension is applied by hand.

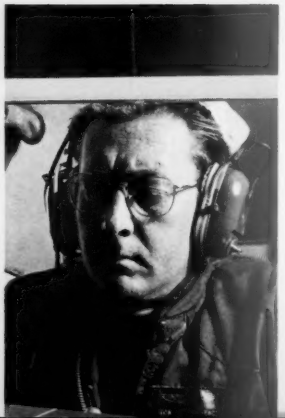
This last theory was expanded further when the CO reported it was the third instance that a FIGAT had barrel-rolled. He opined that, although hard to believe, a small diameter tow cable can transmit enough torque to yaw the flightpath of the target. Experience in the squadron has shown the present swivel tends to function improperly when tensile force is applied. Any tensile force on the cable is known to cause some unraveling of the cable.

The Air Force operates about six flights per week and has not had any stability problems with the FIGAT. They use a superior swivel and reject any targets with warped vertical fin/fuselage. The squadron suspended FIGAT operations and strongly recommended they be authorized to use the superior swivel. ◄

Periodically, a subject gets hot in APPROACH, usually starting from a letter and our reply, and stays on the front burner for an issue or two. Such is the case for . . .

CREW REST



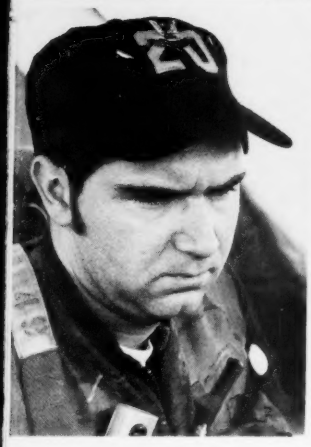


THE subject of crew rest is a highly emotional issue that elicits strong opinions on both sides of the matter. The crux of the argument is: operational commitments or safety by the book – which comes first? Legitimate arguments can be presented on both sides.

It is true, because of the nature of patrol operations *when deployed,* that flightcrews often are faced with the problem of adequate crew rest. This problem also exists, although to a lesser degree, with transport operations during occasional large airlifts.

A recent Anymouse complained as follows: "One month, not too long ago, I was launched on a 12-hour operational flight with only 7 hours' rest after a 7-hour reposition flight. I requested the operational flight be canceled or delayed but was told to bite the bullet. NATOPS says that the CO shall enforce crew rest. That is mandatory."

Now, let's get down to the nitty gritty. Take a crew returning from a 12-hour tactical flight, give them 7 hours' rest, and launch 'em again on another tactical flight. That is too demanding, and NATOPS properly addresses the condition. However, this is not to imply that certain important, urgent nature flights won't occasionally require a crew to launch with less than the magic 15 hours' crew rest.



A letter received from CDR John Siembieda, Commanding Officer of VP-44, has more to say on the subject:

"The FEB '76 issue of APPROACH had a letter on P-3 crew rest (by Name Withheld of a deployed Pacific patrol squadron) and your response, which provoke my first letter to the publication that I've considered professionally essential reading for many years. (Perhaps it's about time!) In any case, the crew rest issue in the P-3 community has become a subject which is ill-served by the vagaries of the English language.

"Now that the P-3A/B Flight Manual has reached the status position whereby it is a vehicle used to place a squadron CO on report (That's right! I'll bet the whole PATWINGSPAC bunch knows which CO got his name in lights.), we need to be at least as specific with our crew rest monitoring conversation as we are when we write those manuals.

"For instance, it is not always true that *NATOPS minimums are 15 hours from postflight to preflight*, as stated by Name Withheld. The current P-3A/B manual's paragraphs on crew rest are designed to be read in the order written, and consequently, flights of less than 6 hours' duration originating during normal working hours require no *specified* prelaunch crew rest period.

"The pending, conference-approved change makes this a bit more obvious by stating that *a minimum of 15 hours' crew rest is required between postflight and preflight of flights scheduled in excess of 6 hours' duration.* But, that's minutia compared to the real issue, and there's still a rub, of course. A CO forced to suffer letter-of-the-law interpretations of the good book would require a semanticist at his elbow to attempt to avoid criticism.

"Hackers and nonhackers alike pose questions such as 'Is that 6 hours' duration applicable to the flight before, the flight after, or both? After a couple of years of that sort of monitoring, the front office realizes that the only understandable word in the whole crew rest section defined by NATOPS is the *"shall"* which comes right after "Commanding Officers"! The rest of the section contains words which are a sea lawyer's delight: mission, scheduled flight time, routine liberty, assigned rest periods, proper utilization, authorized crew rest periods, next assigned mission, and administrative activities. If that sounds like a Delta Sierra for the writers of the manual, let me hasten to add that I am not a volunteer to try to do it better, since I haven't found the first man in total agreement with my interpretation of those words.

"In the end, I think it comes down to one, hard issue. Does the Navy propose to be a 24-hour operational outfit or not? If it does, then there will be occasions that require that command prerogative be exercised. This deployed VP commanding officer will guarantee that operating within the strictest interpretation of the P-3 crew rest dictum assures one outcome: we cannot perform our primary mission 24 hours a day. While I will not explain that for this forum (Does Admiral Gorshkov have a subscription?), I have no fear of a successful challenge.

"I hope I have added a little context to assist in the sensitive area of reviewing decisions of operational COs, while still emphasizing that *NATOPS adherence gets the smart money vote every time." (All italics ours. – Ed.)*

The editorial comments published in the FEB '76 issue of APPROACH are still valid. The Naval Safety Center took the lead in introducing crew rest guidelines into the P-3 manuals because the P-3 analyst determined that crew fatigue was a causal factor in 10.4 percent of all major mishaps. The rationale for placing crew rest guidelines in NATOPS was to remove the onus of making go/no-go decisions from the commanding officer, who operates under the gun of his immediate superior. It is realized that operational commitments will necessitate occasional deviations from these guidelines. The group/wing commander must adjudicate waivers on those occasions. This has the added benefit of having the wing commander reevaluate the validity of all operational commitments with which the concerned squadron is tasked. ◄

Anymouse

Watch Those Rotor Blades

"ANGEL, cleared for takeoff. Take your signals from the LSE." Our H-3 was spotted No. 1 on the angle when my attention was attracted by a "rat-tat-tat" noise. I immediately associated the sound as similar to that heard when rotor blades hit a blade-tracking flag. I glanced across the cockpit past the HAC (who still had his eyes on the LSE) and noticed an E-1 close aboard being taxied to the No. 2 catapult. I yelled, "We're hitting him! We're hitting him!" In a cool but helpless way, the HAC responded by saying, "What can I do?"

Answering his own question, the HAC quickly noted that the blade tips were striking the port aileron of the E-1's folded wing, so he added left cyclic, tilting the tip path plane above the remains of the aileron. After the E-1 taxied clear, we shut the helo down. Scratch five blade tip caps, one E-1 aileron, and E-1 wingtip.

The taxi director failed to ensure clearance between the E-1 and our helicopter. We were preparing to take off (chocks and chains out, crewmen strapped in, all set to go). Both of us had our eyes on the LSE preparing to lift. The taxi director should have held the E-1 aft of the helo until our takeoff was completed. Normally, a wingwalker would have cleared the E-1 past the blade tips (rotating or stationary), but we were in the process of taking off!

We've had similar problems during recoveries when we were cleared to land on the angle, only to find an A-6 passing through our landing area during a hurried respot! While a pilot can be considered ultimately responsible for clearing his aircraft during taxi, blind spots and close quarters on the carrier's flight deck force us to rely heavily on directors. Our lives are in their hands. They have to be well-trained, responsible individuals.

Chewedupmouse

Kind of Scary

THREE of us launched on a weekend cross-country. We left the friendly VFR skies of Yuma for the rugged Northwest. The first leg was a low-level, navigation flight and then into El Toro for fuel. Since we wouldn't have enough fuel to get to our ultimate destination, we filed

the second leg to Fallon.

We had been briefed to expect marginal weather, and it would be dark when we arrived. Accordingly, we thoroughly briefed instrument and emergency procedures.

Just as the weather-guesser prophesied, we flew into IMC not long after reaching our cruising altitude. We'd been in the goo for about 30 minutes when I was detached from the others to shoot a single-aircraft approach. Center gave me a 90-degree heading change to the west of our heading.

Prior to detachment I was in a comfortable wing position, but when on my own, I had to regain that old IFR scan. I was making a 30-degree port turn when Center also requested a manual frequency change *and* a squawk change. I made the frequency change OK, but I couldn't read the dimly lit IFF box. (As a wingie, my IFF had been off.) I turned up the console lights – which helped not a bit – so I turned up the thunderstorm lights

The purpose of Anymouse (anonymous) Reports is to help prevent or overcome dangerous situations. They are submitted by Naval and Marine Corps aviation personnel who have had hazardous or unsafe aviation experiences. These reports need not be signed. Self-mailing forms for writing Anymouse Reports are available in readyrooms and line shacks. All reports are considered for appropriate action.

REPORT AN INCIDENT
PREVENT AN ACCIDENT

full bright and dialed in the IFF squawk.

All of this inside-the-cockpit work took maybe 20-30 seconds. Anyway, when I next saw the AJB-3 I noticed I was in a 60-degree, starboard turn and was also 30 degrees nosedown. Recovery was quickly made and a more thorough scan was used until I made a routine landing.

I attribute the poor execution of instrument flight to the continuous VFR weather at Yuma and my unfamiliarity with night, IFR conditions in the real world. It taught me a valuable lesson in complacency. Never again will I let my scan fail. If it had occurred close to the deck, my wife would be a rich widow today.

1st Lt N. O. Scan

Diving the Duct

AFTER a hurried pilot strapped into his trusty A-7B, the huffer was connected and started to turn up. The plane captain/huffer driver did not understand why the pilot was shaking his head "no" and giving the disconnect signal. About this time, the plane captain trainee came crawling out the intake. Close? You bet.

Squadron SOP states that the pilot will stand by the intake duct while the plane captain or trainee dives the duct. Besides eliminating the possibility of starting the aircraft with someone down the intake, this procedure reinforces the plane captain's belief that their job is important (and believe me, it is). It also promotes the team effort concept of pilot and plane captain. The other problem in this incident is that the pilot allowed himself to be rushed and violated established procedures.

Ductmouse

On *Being* Good

ONCE again the efforts of the Safety Center have been thwarted by the "need" to look good. Two recent ground accidents which occurred at this command will go unreported due to the command's refusal to authorize transmission of the appropriate messages.

The first incident occurred when an ordnanceman was directed to raise the tailhook of an aircraft with his SATS loader and secure it in the UP position. Due to lack of familiarity or training in this aircraft system, the man attempted to perform this task without first raising the hook handle. When his ingenious efforts failed, he tried to manually close the uplock mechanism, at which time the tailhook fell, striking the ordnanceman in the chest. Injury in this case was, fortunately, superficial, and the command felt that the report should be suppressed to preserve the "can-do" attitude!

Shortly thereafter, a piece of support equipment worth well over $2000 was destroyed by negligent operation of yellow gear. The culprit in this case is as yet unknown. This is the reason the command will not send the appropriate safety message.

As a result of this absurd secretiveness, *other* commands are deprived of the opportunity to *learn* from our experience and the entire safety effort is thereby degraded. How many other commands treat incidents in a like manner? Is the safety effort really effective, or are we fooling ourselves?

When will we stop worrying about merely *looking* good and concern ourselves with the real issue – *being* good?

Angrymouse

Ouch!

I'M a second mech in an ASW squadron. I was servicing an engine one day that others had been working on. The exhaust cowling was off and it leaves a nasty, very pointy, painful corner if bumped. Now, I knew about this danger but I still gouged my knee when I hit it, and my legs were already well bumped, knotted, and gouged from other incidents with aircraft metal.

I think if the cowling is going to be off for any length of time, and it usually is, some sort of protective cover should be put on this edge. A piece of plastic designed to cover this edge would do the job nicely.

Scarredmouse

A REAL HANGOVER

By LCDR J. B. Lorenzo, MC, USNR
and LTJG E. A. Nisonger, MSC, USNR
Naval Hospital, Corpus Christi

RECENTLY, a 26-year-old aviator went to a dispensary for treatment of an upset stomach (gastroenteritis) with nausea and vomiting. He was given Compazine (R) suppositories to relieve his problems.

After he used only three of the suppositories, his symptoms were relieved, and he stopped taking the medication. Next morning, feeling much better, he attended an AOM. During the meeting, however, he felt as though he couldn't keep still. These symptoms later subsided, and he reported to the flight surgeon to obtain an up-chit.

While conferring with the flight surgeon, the aviator, almost in passing, mentioned that he was experiencing mild queasiness but said he thought it was part of the disease process. The flight surgeon rightly postponed issuance of the clearance until further medical evaluation.

Later that evening, the pilot experienced a tightening sensation in his jaws with involuntary movements from side to side. The flight surgeon recommended that he go to the naval hospital for treatment.

At the hospital emergency room, the examining doctor noted that this pilot's condition resembled "lockjaw." After further evaluation, the physician noted that the pilot's jaw was involuntarily shifting from one side to the other with wormlike movements and protrusion of the tongue. Suspecting possible drug-induced side effects, the doctor asked the aviator about any recent illness. The aviator mentioned that he had been given certain suppositories for suppression of gastroenteritis.

Consulting his drug reference book, the physician noted that the effects experienced by the young aviator were the same as those listed for the medication. X-rays and lab tests were normal. He decided that the involuntary jaw movements were, indeed, a delayed side effect of the Compazine (R). He counteracted these effects with an injection.

The side effects caused by the Compazine (R) were potentially more hazardous to the aviator than his original illness!

Recommendations:

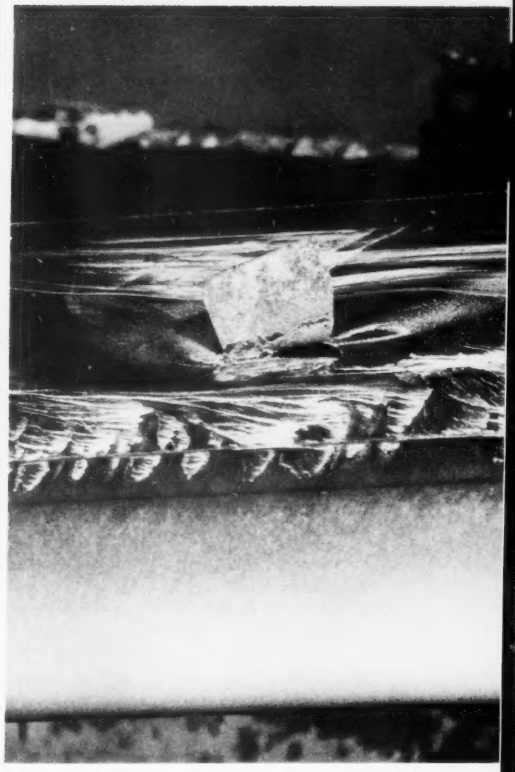
The Compazine (R) related family of drugs should be dispensed carefully to the aviation community because of their bizarre, long-lasting side effects. During and after taking medications, a patient should be extremely honest with the physician as to any unusual or remaining side effects or symptoms. Some drugs can have side effects lasting hours or even days after they have been given. A doctor should be cognizant of any side effect of any drug dispensed to his patients, especially if his patients are in the aviation community. *Appropriate grounding time should be observed, and consultation with a flight surgeon or flight surgeon-designate should occur before an up-chit is granted.*

OPNAVINST 3710.7 (General NATOPS) states that "flight surgeons shall indicate necessary flight limitations on all prescriptions provided to flying personnel . . . Almost any drug or 'pill' can at times produce untoward reactions or impair the coordination and concentration required in flight."

With the growing shortage of flight surgeons, more physicians from other special fields are being called upon to administer treatment to the aviation community. The occupational stresses of flying demand special consideration from the physician. ◄

Approach: Navy 4032, roger your position. Continue. No reported traffic in your flightpath.
Navy 4032: San Diego Approach, Navy 4032, MAYDAY! Heavy airframe vibrations. We're gonna land in the water!
Approach: Navy 4032, roger. We'll notify North Island. Call me when you've landed, if you can.

WELL DONE



IT was 1300 PDT when LTJG Derell T. Brookshire, his copilot, LT Peter M. Lance, and two crewmen, AMSAN Richard J. Gaggero and ADJAN Michael D. Berner, were inbound to NAS North Island from USS KITTY HAWK with a couple of passengers.

The flight had proceeded smoothly until the helicopter was 5 miles from the end of Runway 36, at 300 feet AGL, in a slight descent. Suddenly, severe vibrations developed. The HAC, LTJG Brookshire, initiated emergency procedures, and the crewmen prepared the passengers for a ditching. The vibrations increased in intensity to the point where the HAC felt a controlled water landing was mandatory.

Once they had landed, the helo's watertight integrity was checked, and they began to water taxi toward the beach. Since the vibrations had partially subsided, the HAC attempted a takeoff, but the vibrations intensified, so he landed again. One engine soon developed a high T_5 temp due to salt spray ingestion and was secured. When the helicopter began to ship water, it became obvious that their slow forward progress wouldn't get them to the beach in time. The HAC restarted the secured engine and made the decision to beach the ailing helo on the nearest shoreline.

The vibrations had developed when the forward yellow blade incurred unbonding of pocket No. 17.

LTJG Brookshire's decision to land immediately, instead of trying to stretch his approach to the beach, may have prevented a catastrophe. Well Done! ◄

Letters

RAF Gear Warning System

Republic of Singapore – As the Commanding Officer of the RSAF Flying Training School, I regularly receive copies of APPROACH from the Defense Attache at your embassy here in Singapore. We find the articles most interesting and informative, and naturally, the aim is to learn from the mistakes, etc., reported.

As a *quid pro quo,* I thought you might like to have a few comments regarding the "No Letup" article which appeared in the JAN '76 issue, with particular reference to the proposal by Squadron Leader Rogers of the RAAF.

In the Royal Air Force, we have had for many years a device similar to that described by Squadron Leader Rogers, except that I believe ours to be even simpler and more effective. We do not even have to operate a separate button to activate the warning.

The device operates when the pilot releases the PRESS TO TRANSMIT button after calling for clearance to land. So long as the three wheels are down and locked, the controller hears an immediate "beep, beep, beep" in very quick succession following the pilot's transmission. The "beeps" are fast enough not to cause any distraction to the controller in the tower, and the sound is only heard in the tower receiver, thereby not inconveniencing pilots. The device is also only activated when the weight of the aircraft is off the wheels, so we do not have "beeps" following every transmission whilst taxiing.

As for your doubts about its efficacy during concentrated circuit flying, etc., I must mention that we have never experienced any problems at flying training schools where aircraft call for a landing clearance in a constant stream. As a supervisor at a basic flying training school in the UK, I found the device invaluable in helping to prevent "wheels-up" landings, and I hazard a guess that the RAF record has markedly improved since the incorporation of the warning.

Being a mere pilot and not an engineer, I cannot begin to explain the theory or the method of wiring – all I know is that it works extremely well.

Wing Commander A. S. Tallett, RAF
Flying Training School
Republic of Singapore Air Force

C-9 Servicing

NAS Memphis – Nonstandardized refueling procedures for C-9 aircraft, commented on by LCDR Feltham in the MAR '76 issue, is only one of the many difficulties encountered with enroute servicing of the C-9. Procedures vary not only with each base, as pointed out by NAVSAFECEN, but even at the same base, depending on the time of day. Differences extend also to degree of passenger and baggage service provided, servicing with APU operating, etc. The uncertainty involved plays havoc with even the smallest of professional touches, such as briefing deplaning passengers. The airlines learned long ago that efficient servicing, and therefore efficient line operations, required all normal servicing (i.e., fueling, passenger processing, cargo and baggage handling) be performed simultaneously with required communications and aircraft systems being APU powered. This *modus operandi* can be observed at terminals of any major airline, all of which enjoy enviable safety records. With notable exceptions, such is not the case at military installations.

The key to safety is in trained air and ground crews working as a team. The fueling station, cockpit, cabin, and cargo handling areas must be manned by trained air and ground personnel, and the entire operation closely supervised both as to aircraft servicing and passenger control. It is not semantics but trained air and ground crews working with standardized safety procedures that turn a "rushed" turnaround into one performed professionally and safely in minimum time. As LCDR Feltham points out, ground time is expensive both in aircraft and aircrew utilization. Fifteen minutes added by each station to an eight-stop day for a C-9 increases crew duty by 2 hours with possible severe scheduling or safety implications. Fragmented C-9 custody and the authority of squadron and station commanding officers to impose more stringent servicing limitations augurs little hope of a Navy VR/VRC Ops Manual solving the impasse. In my judgment, an OPNAV directive which includes minimum servicing and passenger handling standards is the only way the C-9 can achieve its full capability in providing first-rate, safe, and professional service to the Fleet.

CAPT T. E. Davis, USN
Former CO, VR-1

Stoofs Forever

NAS North Island – I read the "Credits" on pg. 32 of your APR '76 issue with considerable indignation. Air Anti-Submarine Squadron THIRTY-SEVEN, winner of the 1975 COMNAVAIRPAC Battle "E" and *THE LAST* fleet S-2 squadron, is still fully operational and mission able at NAS North Island. We plan to retire the S-2 in style this September and will invite all "STOOF Drivin' Men" to the ceremony.

STOOF'S FOREVER
JETS ARE FOR KIDS

LCDR J. C. McColly
VS-37

APPROACH welcomes letters from its readers. All letters should be signed though names will be withheld on request. Address: APPROACH Editor, Naval Safety Center, NAS Norfolk, VA 23511. Views expressed are those of the writers and do not imply endorsement by the Naval Safety Center.

Rotated Rotor

NAS North Island – Page 5 of the MAR '76 APPROACH has the silhouette of the H-3 printed in reverse. Note the position of the tail rotor and power cable.

LCDR R. E. Powell

• Will Rogers said he only believed half of what he read. One can also say you cannot believe everything you see. The eyes will play tricks on you. Which photo is correct?

As printed MAR '76

Reverse

Sunglasses

NAF Warminster, PA – My letter doesn't concern an accident or incident, but it does concern me. I'm an air controlman and went to the paraloft the other day to get a pair of sunglasses, which I knew they issued to authorized personnel. As I left the shop they told me to be sure and bring them back when I was through using them, or if I was transferred. I asked what would be done with them when they were returned and was told they would be reissued. When I asked if they were sterilized before reissue they said no.

This strikes me as odd, because I know from a family experience that eyeglasses can transmit eye diseases. Also I know that some of the diseases or infections may not affect one person but may affect the next person. I know funds are tight, and I'm not suggesting that the original user keep the sunglasses, but some type of sterilization would be a good preventive health measure.

It may seem remote, but a lawsuit against the government for eye damage because a wearer contacted it from someone else is a possibility. I just hope I'm never issued a pair of used sunglasses and later lose or damage my eyesight because of it.

ACAN Michael A. Wilson

• We passed your letter to the Naval Aerospace Medical Institute, and this is what they have advised: "We are unaware of any significant number of diseases transmitted via eyeglasses. There would be a possibility of someone transmitting conjunctivitis, but again unlikely. You may know that the lysozyme of our tears is an effective barrier against most bacteria we encounter in day-to-day environments. It is surprising that you have to turn in your aviation sunglasses after using them. It is usually policy that once a person is issued aviation sunglasses, they are his permanently."

Request for P-2 Material

NAS New Orleans – Patrol Squadron 94 is a finalist in the contest to be the last owners and operators of P-2 aircraft. As the noble bird is gradually phased out, we would like to compile a complete history of the P-2s in the Armed Forces.

We'd appreciate anyone having an interesting story or pictures of the P-2 to send them to us. We will protect and return all material to its owners. In return we'll give contributors a copy of our bumper sticker proclaiming "P-2 crews do it lower, slower, and dirtier."

LCDR D. M. Williams
Officer-in-Charge, VP-94

Withhold Names

Cherry Point, NC – The aircraft incident reporting system has been an effective means of identifying hazardous conditions to other squadrons and to those in positions to improve the dangerous situation. Of pivotal importance to this system is the Aviation Safety Officer, whose responsibility it is to ensure that any occurrence that has any bearing on flight safety is reported completely and honestly in accordance with OPNAVINST 3750.6K.

The basic requirement of the reporting system is the cooperation and responsiveness of the individual aircraft commander. Herein lies a critical weakness; the pilot must relate his experience to the ASO for, in many cases, this is the only means by which it can be discovered. However, since the subsequent incident report will contain the involved pilot's name, in effect putting himself on report to the whole Navy, a natural reluctance is often found to report significant safety hazards if they reflect unfavorably on the pilot in command.

Say what you will about the responsibility of mature, professional aviators, human nature and the pride of men in our profession ordain that some reportable incidents must surely go unreported. I therefore submit that the pilot's name should be deleted from the generally promulgated incident report and this information conveyed to the Safety Center by alternate, more private means. Perhaps simply using a social security number would suffice. Only in this way can we encourage the accurate and timely reporting which we all acknowledge as vital to the safety of naval aviation.

CAPT T. D. Pasquale
ASO VMA-231

• You have an excellent point. The reluctance of individuals and commands to report incidents that reflect unfavorably on them has been a significant weakness of the incident system and has resulted in many reportable incidents being suppressed. APPROACH has received many Anymouse reports from various individuals in different commands reporting on incidents that have not been forwarded because the command does not want to "put itself on report." The letter entitled "Misguided Pride" appearing in the MAR '76 APPROACH is a classic example of this. It certainly appears that a move to withhold or disguise the pilot's name would be a step in the right direction.

Some form of pilot identification is necessary in mishap reports in order to maintain pilot histories which are used in many squadrons' accident prevention programs. However, assignment of names is not required, since all Safety Center computer files are currently maintained using social security numbers. Therefore, this recommendation would have no effect on safety records.

In conclusion, your recommendation seems worthwhile. Your proposal is being reviewed by the appropriate people here at NAVSAFECEN prior to the next revision of OPNAV 3750.6. ◄

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approach

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A Naval Safety Center Publication

Our product is safety, our process is education, and our profit is measured in the preservation of lives and equipment and increased mission readiness.

PURPOSES AND POLICIES/APPROACH presents the most accurate information currently available on the subject of aviation accident prevention. Contents should not be considered as regulations, orders, or directives and may not be construed as incriminating under Art. 31, UCMJ. Photographs used to illustrate articles in APPROACH do not necessarily reflect the actual aircraft, air stations or ships that are described in the text.

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CREDITS/The camouflaged RA-5C on this month's cover was painted by Rockwell International artist Robert J. Smith. This unusual Navy paint scheme was used briefly during Vietnam operations, but was abandoned because it cost the *Vigilante* speed and fuel due to the increased friction of the coarser paint.

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The Voice

By LT Jerry Watson
VF-114 ASO

IN this age of positive control, reduced flight time, and infrequent carrier traps, we must constantly be developing the confidence and competence in our skills to safely make it aboard without relying on and expecting outside help.

It is all too easy to become accustomed to THE VOICE making the decisions, guiding us around the skies, and keeping us out of trouble. The following incident points out vividly the inherent fallacy of this attitude.

While sitting in the wardroom one night, several of the younger pilots were discussing (with a fervor that would make a faith healer envious) the intrinsic value of the LSO in keeping them off the blunt end of the boat. It brought to mind an incident that occurred when I was an instructor RIO on my first CQ evolution. The LSO in charge, one of the most highly respected LSOs on the West Coast and a veritable legend in his own time, was debriefing my student. He had gotten his first couple of night traps under his belt, and while not being quite ready for the Golden Hook Award, he had performed the basics fairly well. At the close of the debrief the student happened to mention to the LSO how he felt.

"I feel really confident knowing you're on the platform. I know you'll keep me out of trouble."

At that point the crusty old LSO posed a question to the nugget.

"How many ramp strikes have there been without an LSO on the platform?"

A quizzical look came over the young nugget's face.

"ZERO! And do you know how many there have been *with* an LSO on the platform?"

Again a perplexed look.

"EVERY (expletive deleted) ONE OF THEM!"


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